



#4

## SEQUENCE LISTING

<110> Lowell, George  
Vancott, Thomas  
Birx, Deborah

<120> PROTEIN AND PEPTIDE VACCINES FOR  
INDUCING MUCOSAL IMMUNITY

<130> 40646-20002.10

<140> US 09/938,406

<141> 2001-08-21

<150> US 09/214,701

<151> 1999-09-30

<150> PCT/US 97/12253

<151> 1997-07-10

<150> US 60/021,687

<151> 1996-07-10

<160> 18

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 868

<212> PRT

<213> Virus HIV-1

<400> 1

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Ala	Asn	Leu	Trp	Val	Thr	Val	Tyr	Tyr	Gly	Val	Pro	Val	Trp	Lys	Glu
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Ala	Thr	Thr	Thr	Leu	Phe	Cys	Ala	Ser	Asp	Ala	Lys	Ala	Tyr	Asp	Thr
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Glu	Ala	His	Asn	Val	Trp	Ala	Thr	His	Ala	Cys	Val	Pro	Thr	Asn	Pro
65				70						75				80	
Asn	Pro	Gln	Glu	Val	Val	Leu	Glu	Asn	Val	Thr	Glu	Asn	Phe	Asn	Met
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Trp	Lys	Asn	Asn	Met	Val	Glu	Gln	Met	His	Glu	Asp	Ile	Ile	Ser	Leu
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Trp	Asp	Gln	Ser	Leu	Lys	Pro	Cys	Val	Lys	Leu	Thr	Pro	Leu	Cys	Val
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Glu	Leu	Ser	Ile	Ile	Val	Val	Trp	Glu	Gln	Arg	Gly	Lys	Gly	Glu	Met
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Arg	Asn	Cys	Ser	Phe	Asn	Ile	Thr	Thr	Ser	Ile	Arg	Asp	Lys	Val	Gln
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Arg	Glu	Tyr	Ala	Leu	Phe	Tyr	Lys	Leu	Asp	Val	Glu	Pro	Ile	Asp	Asp

			180				185				190				
Asn	Lys	Asn	Thr	Thr	Asn	Asn	Thr	Lys	Tyr	Arg	Leu	Ile	Asn	Cys	Asn
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Thr	Ser	Val	Ile	Thr	Gln	Ala	Cys	Pro	Lys	Val	Ser	Phe	Glu	Pro	Ile
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Pro	Ile	His	Tyr	Cys	Thr	Pro	Thr	Gly	Phe	Ala	Leu	Leu	Lys	Cys	Asn
225					230					235					240
Asp	Lys	Lys	Phe	Asn	Gly	Thr	Gly	Pro	Cys	Thr	Asn	Val	Ser	Thr	Val
				245					250					255	
Gln	Cys	Thr	His	Gly	Ile	Arg	Pro	Val	Val	Ser	Thr	Gln	Leu	Leu	Leu
			260					265					270		
Asn	Gly	Ser	Leu	Ala	Glu	Glu	Glu	Val	Val	Ile	Arg	Ser	Glu	Asn	Phe
		275					280					285			
Thr	Asn	Asn	Ala	Lys	Thr	Ile	Ile	Val	Gln	Leu	Asn	Val	Ser	Val	Glu
		290				295					300				
Ile	Asn	Cys	Thr	Arg	Pro	Asn	Asn	His	Thr	Arg	Lys	Arg	Val	Thr	Leu
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Gly	Pro	Gly	Arg	Val	Trp	Tyr	Thr	Thr	Gly	Glu	Ile	Leu	Gly	Asn	Ile
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Arg	Gln	Ala	His	Cys	Asn	Ile	Ser	Arg	Ala	Gln	Trp	Asn	Asn	Thr	Leu
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Gln	Gln	Ile	Ala	Thr	Thr	Leu	Arg	Glu	Gln	Phe	Gly	Asn	Lys	Thr	Ile
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Ala	Phe	Asn	Gln	Ser	Ser	Gly	Gly	Asp	Pro	Glu	Ile	Val	Met	His	Ser
		370				375					380				
Phe	Asn	Cys	Gly	Gly	Glu	Phe	Phe	Tyr	Cys	Asn	Ser	Thr	Gln	Leu	Phe
385					390					395					400
Asn	Ser	Ala	Trp	Asn	Val	Thr	Ser	Asn	Gly	Thr	Trp	Ser	Val	Thr	Arg
				405					410					415	
Lys	Gln	Lys	Asp	Thr	Gly	Asp	Ile	Ile	Thr	Leu	Pro	Cys	Arg	Ile	Lys
			420					425					430		
Gln	Ile	Ile	Asn	Arg	Trp	Gln	Val	Val	Gly	Lys	Ala	Met	Tyr	Ala	Leu
		435					440					445			
Pro	Ile	Lys	Gly	Leu	Ile	Arg	Cys	Ser	Ser	Asn	Ile	Thr	Gly	Leu	Leu
		450				455					460				
Leu	Thr	Arg	Asp	Gly	Gly	Gly	Glu	Asn	Gln	Thr	Thr	Glu	Ile	Phe	Arg
465					470					475					480
Pro	Gly	Gly	Gly	Asp	Met	Arg	Asp	Asn	Trp	Arg	Ser	Glu	Leu	Tyr	Lys
				485					490					495	
Tyr	Lys	Val	Val	Lys	Ile	Glu	Pro	Leu	Gly	Val	Ala	Pro	Thr	Lys	Ala
			500					505					510		
Lys	Arg	Arg	Val	Val	Gln	Arg	Glu	Lys	Arg	Ala	Val	Gly	Met	Leu	Gly
		515					520					525			
Ala	Met	Phe	Leu	Gly	Phe	Leu	Gly	Ala	Ala	Gly	Ser	Thr	Met	Gly	Ala
		530				535					540				

Met	Glu	Trp	Asp	Arg	Glu	Ile	Asp	Asn	Tyr	Thr	His	Leu	Ile	Tyr	Thr
				645					650					655	
Leu	Ile	Glu	Glu	Ser	Gln	Asn	Gln	Gln	Glu	Lys	Asn	Gln	Gln	Glu	Leu
			660					665					670		
Leu	Gln	Leu	Asp	Lys	Trp	Ala	Ser	Leu	Trp	Thr	Trp	Ser	Asp	Ile	Thr
		675					680					685			
Lys	Trp	Leu	Trp	Tyr	Ile	Lys	Ile	Phe	Ile	Met	Ile	Val	Gly	Gly	Leu
	690					695					700				
Ile	Gly	Leu	Arg	Ile	Val	Phe	Ala	Val	Leu	Ser	Ile	Val	Asn	Arg	Val
705					710					715					720
Arg	Gln	Gly	Tyr	Ser	Pro	Leu	Ser	Phe	Gln	Thr	Leu	Leu	Pro	Asn	Pro
				725					730					735	
Arg	Gly	Pro	Asp	Arg	Pro	Glu	Gly	Thr	Glu	Glu	Gly	Gly	Gly	Glu	Arg
			740					745					750		
Gly	Arg	Asp	Gly	Ser	Thr	Arg	Leu	Val	His	Gly	Phe	Leu	Ala	Leu	Val
		755					760					765			
Trp	Asp	Asp	Leu	Arg	Ser	Leu	Cys	Leu	Phe	Ser	Tyr	His	Arg	Leu	Arg
	770					775					780				
Asp	Leu	Leu	Leu	Ile	Val	Ala	Arg	Ile	Val	Glu	Leu	Leu	Gly	Arg	Arg
785					790					795					800
Gly	Trp	Glu	Val	Leu	Lys	Tyr	Trp	Trp	Asn	Leu	Leu	Gln	Tyr	Trp	Ser
				805					810					815	
Gln	Glu	Leu	Lys	Asn	Ser	Ala	Val	Ser	Leu	Val	Asn	Val	Thr	Ala	Ile
			820					825					830		
Ala	Val	Ala	Glu	Gly	Thr	Asp	Arg	Val	Ile	Glu	Val	Val	Gln	Arg	Ile
		835					840					845			
Tyr	Arg	Ala	Phe	Leu	His	Ile	Pro	Arg	Arg	Ile	Arg	Gln	Gly	Phe	Glu
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Arg	Ala	Leu	Leu												
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<210> 2

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Hydrophobic peptide added to the terminus of the antigenic peptide

<400> 2

Phe Leu Leu Ala Val

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<213> Artificial Sequence

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<223> Hydrophobic peptide added to the terminus of the antigenic peptide

<400> 3

Val Ala Leu Leu Phe

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 20 25 30  
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 35 40 45  
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 50 55 60  
 Asn Val Asp Pro  
 65

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 <212> DNA  
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 gatccccgggt gactgactga 20

<210> 7  
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 <212> DNA  
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 gatctcagtc agtcacccgg 20

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<223> Synthetic oligopeptide

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Gly Asn Val Gln Ala Ala Lys Asp Gly Gly Asn Thr Ala Ala Gly Arg  
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<210> 9

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<223> Trypanosomal peptide pepG

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<211> 10

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<223> Trypanosomal peptide pepM1

<400> 10

Tyr Gly Val Pro Val Ala Thr Gln Thr Gly  
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<210> 11

<211> 12

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<223> Trypanosomal peptide pepCM1

<400> 11

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1 5 10

<210> 12

<211> 30

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<223> Trypanosomal peptide pepCM3

<400> 12

Cys Tyr Gly Val Pro Val Ala Gln Thr Gln Thr Gly Val Pro Val Ala  
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Thr Gln Thr Gly Val Pro Val Ala Gln Thr Gln Thr Gly Val Pro Val  
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Ala Gln Thr Gln Thr Gly Val Pro Val Ala Gln Thr Gln Thr Gly  
35 40 45

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<223> Trypanosomal peptide pepCM5

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Gln Thr Gln Thr Gly Val Pro Val Ala Gln Thr Gln Thr Gly Val Pro  
20 25 30  
Val Ala Gln Thr Gln Thr Gly Val Pro Val Ala Gln Thr Gln Thr Gly  
35 40 45

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<223> Trypanosomal peptide pepCL1

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<210> 17  
<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic DNA hydrophobic decapeptide coding  
sequence

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ggtggttact gcttcgttgc tctgctgttc tgag

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<210> 18

<211> 38

<212> DNA

<213> Artificial Sequence

<220>

<223> Complementary chain of the hydrophobic decapeptide  
encoding sequence

<400> 18

tcgactcaga acagcagagc aacgaagcag taaccacc

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